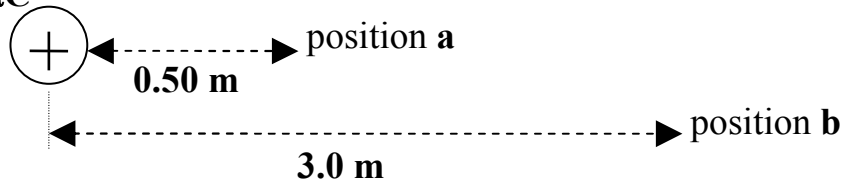


Example 11. What is the potential difference between the two positions in the following example?

$$Q = 20\mu\text{C}$$



$$\Delta V = V_b - V_a$$

$$= \frac{kQ}{r_b} - \frac{kQ}{r_a} = kQ \left[\frac{1}{r_2} - \frac{1}{r_1} \right]$$

$$= (9 \times 10^9)(20 \times 10^{-6}) \left[\frac{1}{3} - \frac{1}{.5} \right]$$

$$\boxed{\Delta V = -3.0 \times 10^5 \text{ V}}$$